



Standard Operating Procedures for Collecting and Handling Soil Samples in Oklahoma

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Rationale for SOP

Test results can be no better than the sample collected in the field. Differences in sample collection such as depth of samples, handling of samples, number of subsamples, and selection of sampling locations can influence the outcome and interpretation of the results. This SOP is intended to assure uniformity of sample collection and handling to minimize variability and assure proper interpretation. Proper collection of soil samples is particularly important for development of animal waste management plans, pollution control plans, and water quality protection plans. It can also assure that results will be consistent with the state's calibration for crop response. The following standard operating procedures are recommended to all individuals and agencies in Oklahoma for collecting and handling soil samples.

1. **Obtain the correct tool for soil sampling.** The recommended tool is a soil probe or auger marked for a six-inch depth (Figure 1). A clean plastic bucket is also needed to hold and mix soil cores before putting them in sample bag or other designated container.. (OSU Soil, Water and Forage Analytical Laboratory bags can be obtained from your local county extension office or fertilizer dealers.)

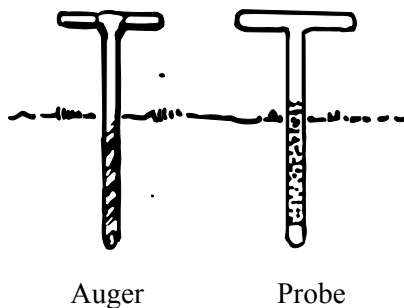


Figure 1. Soil probe or an auger marked for 6-inch depth is the recommended tools for collecting soil samples.

The use of a shovel is generally discouraged because of the extra steps involved to obtain a representative sample. If a shovel is used, dig a hole then take a slice of soil one-half inch thick and six inches deep. Keep the slice on the shovel. Cut a strip one-half inch wide from the center of the slice, top to bottom, and put it in the container (Figure 2). Repeat this 20 times as explained in (3) below.

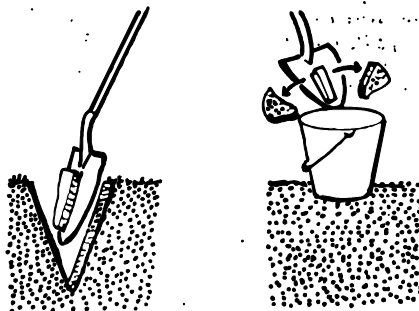


Figure 2. The correct procedures of using shovel to collect soil samples.

2. **Identify sampling area:** Draw a map of the area to be sampled on the tag of soil bag or in your notebook. Divide your fields into uniform areas, as shown in Figure 3. Each sub-area should have a similar crop and fertilizer history, soil texture, color and slope. Take 20 sub-samples for a composite to represent each field area. A soil survey map may be helpful in identifying sampling area.

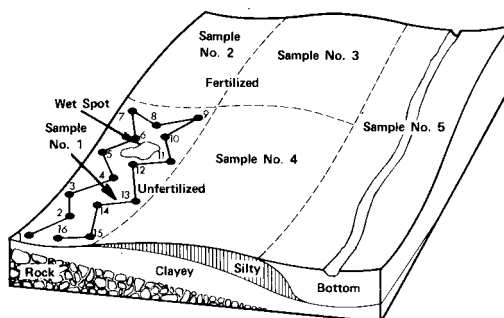


Figure 3. Diagram shown how to identify a sampling area. Divide field into uniform sampling areas and follow a random pattern to collect 20 cores disregard the size of the field. Avoid unusual spots.

3. **Take at least 20 cores (or subsamples) from each sampling area:** Follow a random zig-zag pattern to get a minimum of 20 cores from the sampling area. Remove thatch and other plant residue from the soil surface before pushing soil probe into the soil. Mix the collection of subsamples thoroughly in a clean container, pick out visible rocks and plant residue. Take one pint for analysis (fits in OSU soil sample bags). Fewer than 20 subsamples in any size area will give less than accurate results

4. **Take samples to the right depth:** Take the surface sample as close to 6 inches as possible. Interpretation of results is based on 6-inch depth, therefore, depth different from 6 inches should be recorded on tag with sample and in field notebook.

Subsoil sampling for assessing nitrate and other mobile nutrients should be collected from 6 to 24 inch below the soil surface.

5. **Avoid sampling old fencerows, low spots, livestock feeding areas, and other areas not typical of the area you are sampling. Such areas may need to be treated as a separate sampling area.**
6. **Handle sample properly:** Record enough information on the tags attached to sample bag to identify the location (including identifiers for sub-field areas), date of sampling, depth of sample if different from 6 inches, and test requested. Also record this information in a logbook for future reference. County Extension Offices can help you with crop codes, yield goal and what test is needed for standard fertility tests. They will also mail your samples to OSU Soil, Water and Forage Analytical Laboratory if you choose to do so and assist you to interpret test results.

7. **See OSU Extension Facts No. 2207 How to Get a Good Soil Sample for further information.**

For other information related to soil testing please visit <http://www.soiltesting.okstate.edu>

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